

What is claimed is:

1. A method for imprinting wafer-identifying information using a patterned resist layer, on wafers each having a plurality of thin-film devices formed thereon in a batch, the wafer-identifying information including a plurality of digits, each digit being expressed with a numeral or a symbol, the method comprising the steps of:
  - selecting a wafer to be imprinted with the wafer-identifying information;
  - forming a resist layer on the selected wafer;
  - exposing the resist layer, using a mask, to light for forming a latent image of the wafer-identifying information; and
  - forming the patterned resist layer by developing the exposed resist layer, wherein:
    - in the step of exposing the resist layer, exposure is performed for each digit of the wafer-identifying information in which the numeral or the symbol is changeable wafer by wafer, by selecting a mask on which a pattern of a numeral or the symbol to be imprinted is drawn thereon for each digit.

2. The method for imprinting wafer-identifying information according to claim 1, wherein:

in the step of exposing the resist layer, the selection of a mask on which the pattern of a numeral or the

symbol to be imprinted is drawn thereon and the exposure using the selected mask are repeated as many times as the number of digits of the wafer-identifying information, so that exposure is performed for all digits of the wafer-  
5 identifying information.

3. The method for imprinting wafer-identifying information according to claim 1, wherein:

in the step of exposing the resist layer, the resist  
10 layer is further exposed to light for forming a latent image of device location information for identifying a position of a thin-film device in the wafer, using a mask on which a pattern of the device location information is drawn thereon.

4. The method for imprinting wafer-identifying information according to claim 1, wherein:

the numeral or symbol of each digit of the wafer-identifying information varies in accordance with a certain rule in response to change of one selected wafer to another,  
20 and

in the step of exposing the resist layer, one selected mask is changed to another in response to the change of one selected wafer to another in such a manner as to correspond to the rule of the variation of the numeral or symbol of  
25 each digit of the wafer-identifying information.

5. The method for imprinting wafer-identifying information according to claim 1, wherein:

in step of exposing the resist layer, a positional relationship between the mask and the wafer is changed for  
5 each digit of the wafer-identifying information, so that the numeral or symbol of each digit of the wafer-identifying information is imprinted at a mutually different position.

6. The method for imprinting wafer-identifying  
10 information according to claim 1, further comprising the step of etching a layer underlying the patterned resist layer, using the patterned resist layer as an etching mask.

7. The method for imprinting wafer-identifying  
15 information according to claim 1, further comprising the step of forming a plating layer by performing plating with the patterned resist layer used as a frame.

8. An exposure method for imprinting wafer-identifying  
20 information that is used for imprinting wafer-identifying information using a patterned resist layer on wafers each having a plurality of thin-film devices formed thereon in a batch, the wafer-identifying information including a plurality of digits, each digit being expressed with a  
25 numeral or a symbol, the exposure method exposing the patterned resist layer formed on the wafer to light for

forming a latent image of the wafer-identifying information, and comprising the steps of:

selecting a wafer to be imprinted with the wafer-identifying information, and

5 exposing the resist layer of the selected wafer, using a mask, to the light for forming the latent image of the wafer-identifying information, wherein:

in the step of exposing the resist layer, exposure is performed for each digit of the wafer-identifying  
10 information in which the numeral or the symbol is changeable wafer by wafer, by selecting a mask on which a pattern of a numeral or the symbol to be imprinted is drawn thereon for each digit.

15 9. The exposure method for imprinting wafer-identifying information according to claim 8, wherein

in the step of exposing the resist layer, the selection of a mask on which the pattern of a numeral or the symbol to be imprinted is drawn thereon and the exposure  
20 using the selected mask are repeated as many times as the number of digits of the wafer-identifying information, so that exposure is performed for all digits of the wafer-identifying information.

25 10. The exposure method for imprinting wafer-identifying information according to claim 8, wherein:

in the step of exposing the resist layer, the resist layer is further exposed to light for forming a latent image of device location information for identifying a position of a thin-film device in the wafer, using a mask on which a  
5 pattern of the device location information is drawn thereon.

11. The exposure method for imprinting wafer-identifying information according to claim 8, wherein:

the numeral or symbol of each digit of the wafer-  
10 identifying information varies in accordance with a certain rule in response to change of one selected wafer to another, and

in the step of exposing the resist layer, one selected mask is changed to another in response to the change of one  
15 selected wafer to another in such a manner as to correspond to the rule of the variation of the numeral or symbol of each digit of the wafer-identifying information.

12. The exposure method for imprinting wafer-  
20 identifying information according to claim 8, wherein:

in step of exposing the resist layer, a positional relationship between the mask and the wafer is changed for each digit of the wafer-identifying information, so that the numeral or symbol of each digit of the wafer-identifying  
25 information is imprinted at a mutually different position.

\ 13. An exposure apparatus for imprinting wafer-identifying information that is used for imprinting wafer-identifying information using a patterned resist layer on wafers each having a plurality of thin-film devices formed thereon in a batch, the wafer-identifying information including a plurality of digits, each digit being expressed with a numeral or a symbol, the exposure apparatus exposing the patterned resist layer formed on the wafer to light for forming a latent image of the wafer-identifying information, and comprising:

a wafer selecting device for selecting a wafer to be imprinted with the wafer-identifying information, and

an exposure device for exposing the resist layer of the wafer selected by the wafer selecting device, using a mask, to the light for forming the latent image of the wafer-identifying information, wherein:

the exposure device has a mask selecting device for selecting a mask on which a pattern of a numeral or symbol to be imprinted is drawn thereon for each digit of the wafer-identifying information in which the numeral or the symbol is changeable wafer by wafer.

14. The exposure apparatus for imprinting wafer-identifying information according to claim 13, wherein the exposure device repeats the selection of a mask on which the pattern of a numeral or the symbol to be imprinted is drawn

thereon and the exposure using the selected mask as many times as the number of digits of the wafer-identifying information, so as to perform exposure for all digits of the wafer-identifying information.

5

15. The exposure apparatus for imprinting wafer-identifying information according to claim 13, wherein the exposure device further exposes the resist layer to light for forming a latent image of device location information for identifying a position of a thin-film device in the wafer, using a mask on which a pattern of the device location information is drawn thereon.

16. The exposure apparatus for imprinting wafer-identifying information according to claim 13, wherein:

the numeral or symbol of each digit of the wafer-identifying information varies in accordance with a certain rule in response to change of one selected wafer to another, and

the mask selecting device changes one selected mask to another in response to the change of one selected wafer to another in such a manner as to correspond to the rule of the variation of the numeral or symbol of each digit of the wafer-identifying information.

25

17. The exposure apparatus for imprinting wafer-

identifying information according to claim 13, wherein the exposure device further has a position changing device for changing a positional relationship between the mask and the wafer for each digit of the wafer-identifying information,

5 so that the numeral or symbol of each digit of the wafer-identifying information is imprinted at a mutually different position.

Patent Office